Zytel® ST801A NC010A

NYLON RESIN

DuPont Performance Polymers

PROSPECTOR®
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Technical Data

Product Description			
Unreinforced, Super Toughened, Polyamide 66			
General			
Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Additive	• Mold Release		
RoHS Compliance	• Contact Manufacturer		
Forms	• Pellets		
Processing Method	• Casting • Coating • Extrusion	• Film Extrusion • Injection Molding • Profile Extrusion	• Sheet Extrusion
Multi-Point Data	• Shear Stress vs. Shear Rate (ISO 11403-1)	• Viscosity vs. Shear Rate (ISO 11403-2)	
Part Marking Code (ISO 11469)	• PA66-HI		
Resin ID (ISO 1043)	• PA66-HI		

Physical	Dry	Conditioned	Unit	Test Method
Density	1.07	--	g/cm³	ISO 1183
Molding Shrinkage				ISO 294-4
Across Flow	1.4	--	%	
Flow	1.8	--	%	
Water Absorption				ISO 62
24 hr, 73°F (23°C)	1.1	--	%	
Saturation, 73°F (23°C), 0.0787 in (2.00 mm)	6.5	--	%	
Equilibrium, 73°F (23°C), 0.0787 in (2.00 mm), 50% RH	2.0	--	%	
Viscosity Number	130	--	cm³/g	ISO 307

Mechanical	Dry	Conditioned	Unit	Test Method
Tensile Modulus	290000 (2000)	131000 (900)	psi (MPa)	ISO 527-2
Tensile Stress (50% Strain)	7110 (49.0)	6380 (44.0)	psi (MPa)	ISO 527-2
Tensile Strain (Break)	> 50	> 50	%	ISO 527-2
Tensile Creep Modulus				ISO 899-1
1 hr	--	116000 (800)	psi (MPa)	
1000 hr	--	102000 (700)	psi (MPa)	
Flexural Modulus	261000 (1800)	102000 (700)	psi (MPa)	ISO 178
Poisson's Ratio	0.40	0.45		ISO 527

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Impact	Dry	Conditioned	Unit	Test Method
Charpy Notched Impact Strength				ISO 179/1eA
-22°F (-30°C)	9.5 (20)	9.5 (20)	ft·lb/in² (kJ/m²)	
73°F (23°C), Partial Break	33 (70)	48 (100)	ft·lb/in² (kJ/m²)	
Charpy Unnotched Impact Strength				ISO 179/1eU
73°F (23°C)	--	No Break		
Notched Izod Impact Strength				ISO 180/1A
-40°F (-40°C)	9.5 (20)	8.1 (17)	ft·lb/in² (kJ/m²)	
-22°F (-30°C)	7.1 (15)	7.1 (15)	ft·lb/in² (kJ/m²)	
73°F (23°C)	38 (80)	43 (90)	ft·lb/in² (kJ/m²)	

Thermal	Dry	Conditioned	Unit	Test Method
Heat Deflection Temperature				
66 psi (0.45 MPa), Unannealed	315 (157)	--	°F (°C)	ISO 75-2/B
264 psi (1.8 MPa), Unannealed	145 (63.0)	--	°F (°C)	ISO 75-2/A
Glass Transition Temperature [2]	167 (75.0)	--	°F (°C)	ISO 11357-2
Vicat Softening Temperature	401 (205)	--	°F (°C)	ISO 306/B50
Melting Temperature [2]	504 (262)	--	°F (°C)	ISO 11357-3
CLTE				
Flow : 73 to 131°F (23 to 55°C)	7.8E-5 (1.4E-4)	--	in/in/°F (cm/cm/°C)	ASTM E831
Flow	7.8E-5 (1.4E-4)	--	in/in/°F (cm/cm/°C)	ISO 11359-2
Flow : -40 to 73°F (-40 to 23°C)	6.1E-5 (1.1E-4)	--	in/in/°F (cm/cm/°C)	ISO 11359-2
Flow : 131 to 320°F (55 to 160°C)	8.9E-5 (1.6E-4)	--	in/in/°F (cm/cm/°C)	ISO 11359-2
Transverse : 73 to 131°F (23 to 55°C)	7.2E-5 (1.3E-4)	--	in/in/°F (cm/cm/°C)	ASTM E831
Transverse	7.2E-5 (1.3E-4)	--	in/in/°F (cm/cm/°C)	ISO 11359-2
Transverse : -40 to 73°F (-40 to 23°C)	6.1E-5 (1.1E-4)	--	in/in/°F (cm/cm/°C)	ISO 11359-2
Transverse : 131 to 320°F (55 to 160°C)	7.2E-5 (1.3E-4)	--	in/in/°F (cm/cm/°C)	ISO 11359-2

Electrical	Dry	Conditioned	Unit	Test Method
Surface Resistivity	--	1.0E+12	ohms	IEC 62631-3-2
Volume Resistivity	> 1.0E+13	8.7E+10	ohms·m	IEC 62631-3-1
Electric Strength	640 (25)	--	V/mil (kV/mm)	IEC 60243-1
Relative Permittivity				IEC 62631-2-1
1 MHz	3.30	3.50		
100 Hz	3.50	5.90		
Dissipation Factor				IEC 62631-2-1
100 Hz	5.0E-3	0.16		
1 MHz	0.010	0.038		
Comparative Tracking Index	600	--	V	IEC 60112

Flammability	Dry	Conditioned	Unit	Test Method
Burning Rate [3] (0.0394 in (1.00 mm))	< 3.9 (< 100)	--	in/min (mm/min)	ISO 3795
Flame Rating				UL 94 IEC 60695-11-10, -20
0.03 in (0.8 mm)	HB	--		
0.06 in (1.5 mm)	HB	--		
Oxygen Index	20	--	%	ISO 4589-2
FMVSS Flammability	B	--		FMVSS 302

Fill Analysis	Dry	Conditioned	Unit
Ejection Temperature	374 (190)	--	°F (°C)

Injection	Dry (English)	Dry (SI)
Drying Temperature	176 °F	80 °C
Drying Time - Desiccant Dryer	2.0 to 4.0 hr	2.0 to 4.0 hr
Suggested Max Moisture	0.20 %	0.20 %
Processing (Melt) Temp	536 to 572 °F	280 to 300 °C
Melt Temperature, Optimum	554 °F	290 °C
Mold Temperature	122 to 212 °F	50 to 100 °C
Mold Temperature, Optimum	176 °F	80 °C
Holding Pressure	7250 to 14500 psi	50.0 to 100 MPa
Drying Recommended	yes	yes
Hold Pressure Time	4.00 s/mm	4.00 s/mm
Maximum Screw Tangential Speed	709 in/min	18 m/min

Notes

[1] Typical properties: these are not to be construed as specifications.

[2] 10°C/min

[3] FMVSS 302

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Where to Buy

Supplier

DuPont Performance Polymers
Wilmington, DE USA
Telephone: 302-999-4592
Web: http://plastics.dupont.com/

Distributor

Biesterfeld Plastic GmbH
Biesterfeld Plastic GmbH is a Pan European distribution company. Contact Biesterfeld Plastic GmbH for availability of individual products by country.
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Web: http://www.biesterfeld-plastic.com/
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PolyOne Distribution
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Availability: Global

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Shanghai Jingyang New Material Technology Co., Ltd
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Availability: Asia Pacific, China